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DT-7000

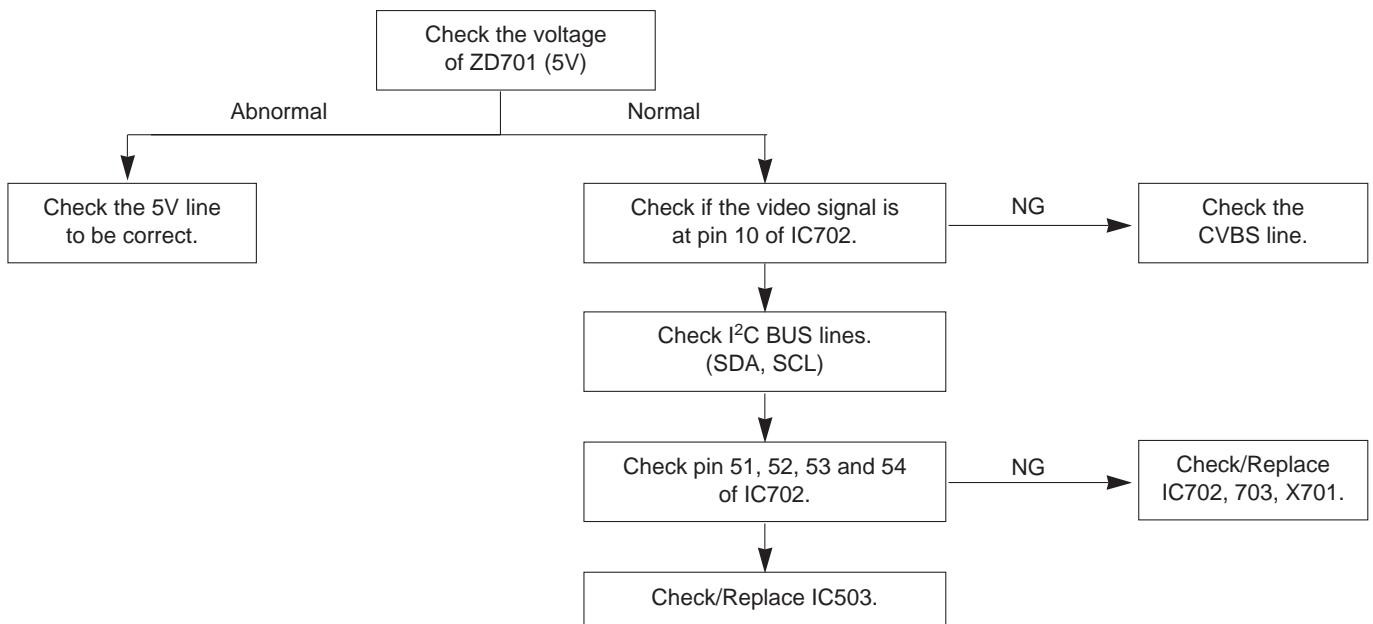
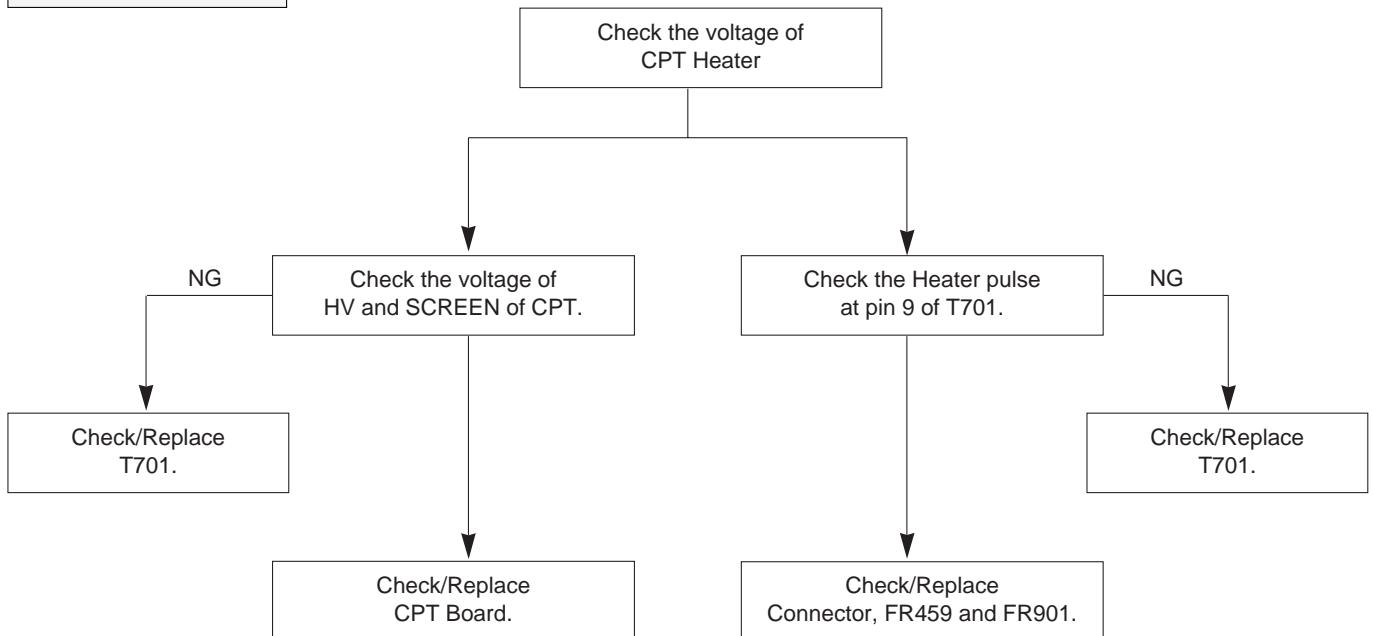
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MODEL

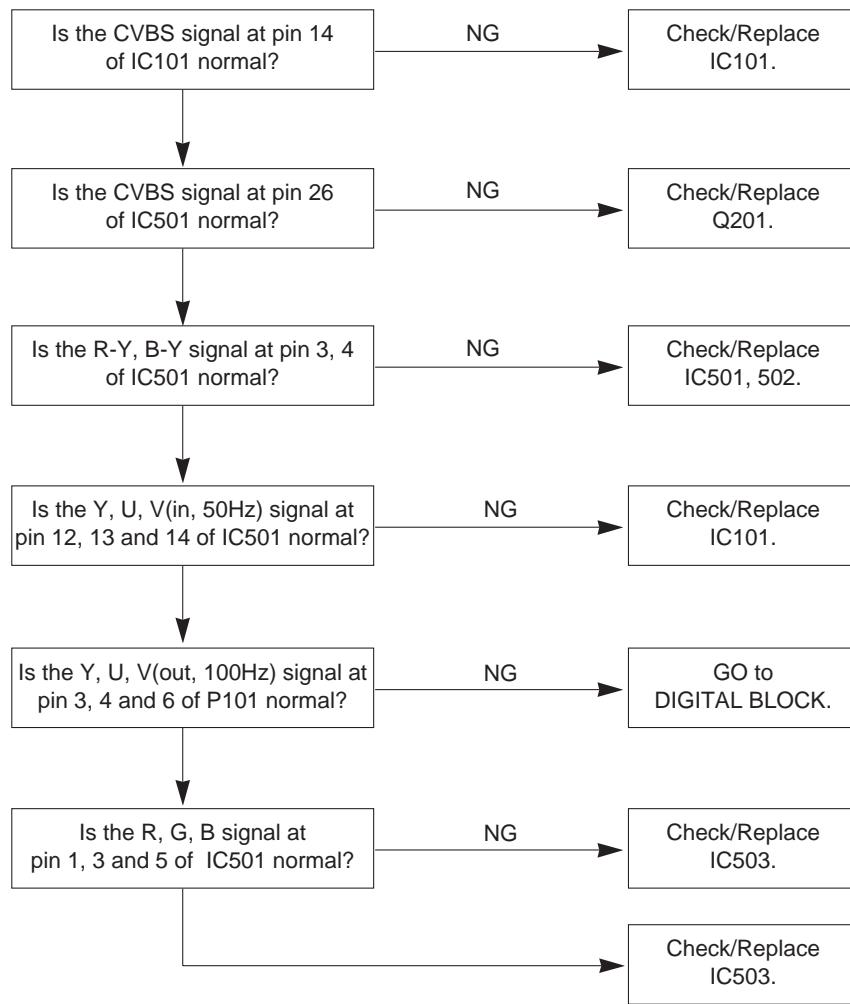
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SERVICE MANUAL

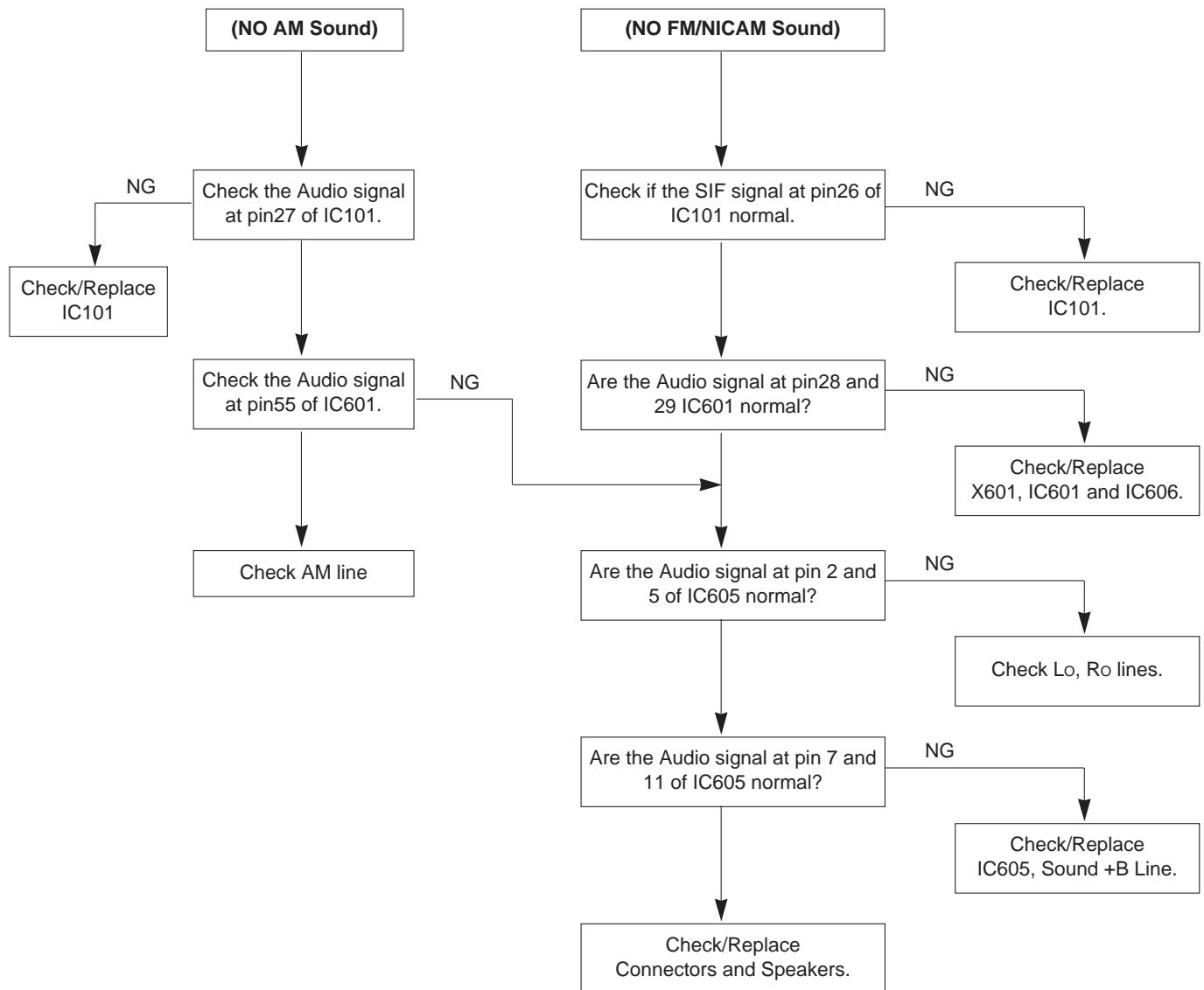
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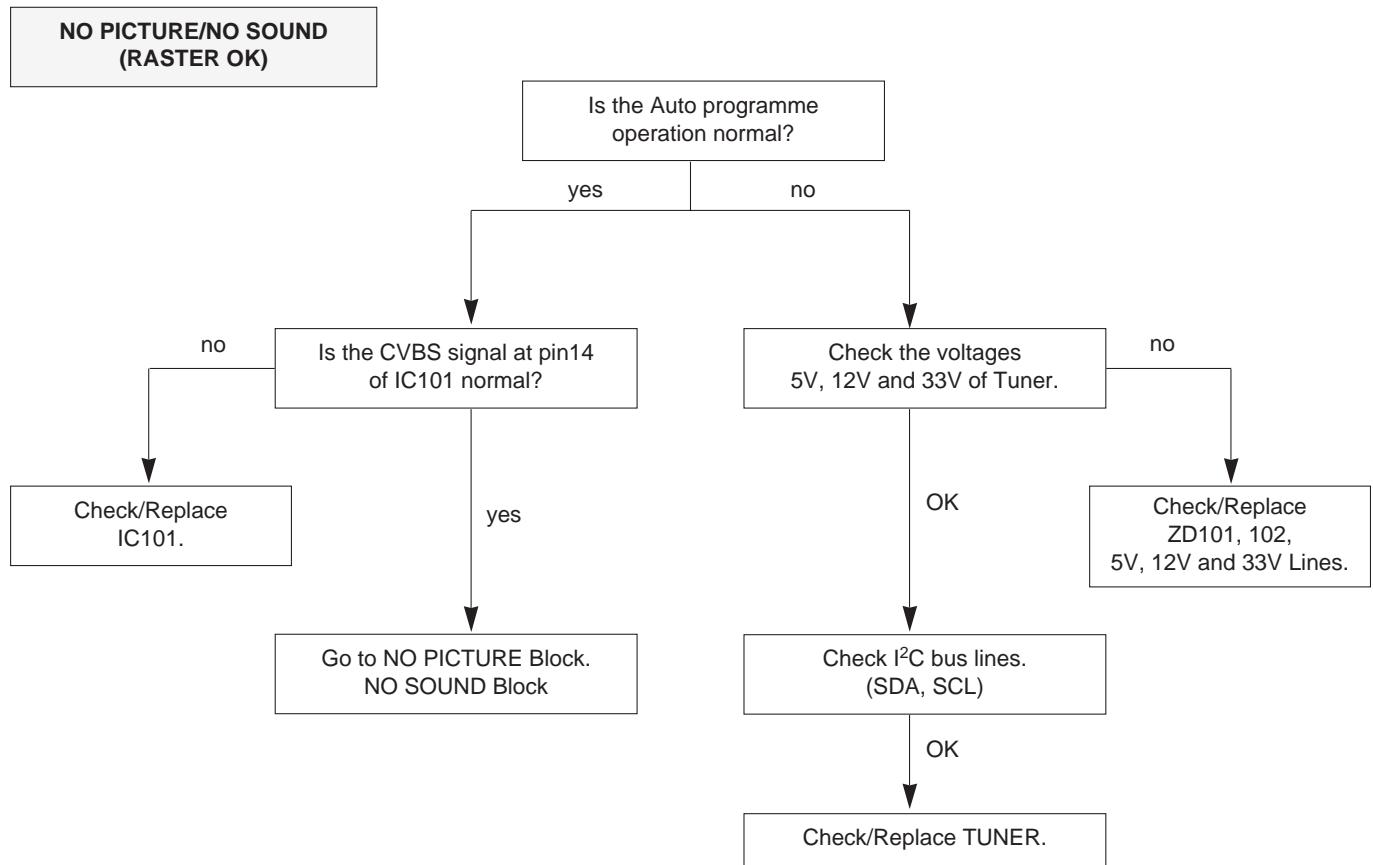
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(SOUND OK)**

**NO PICTURE/NO COLOR**

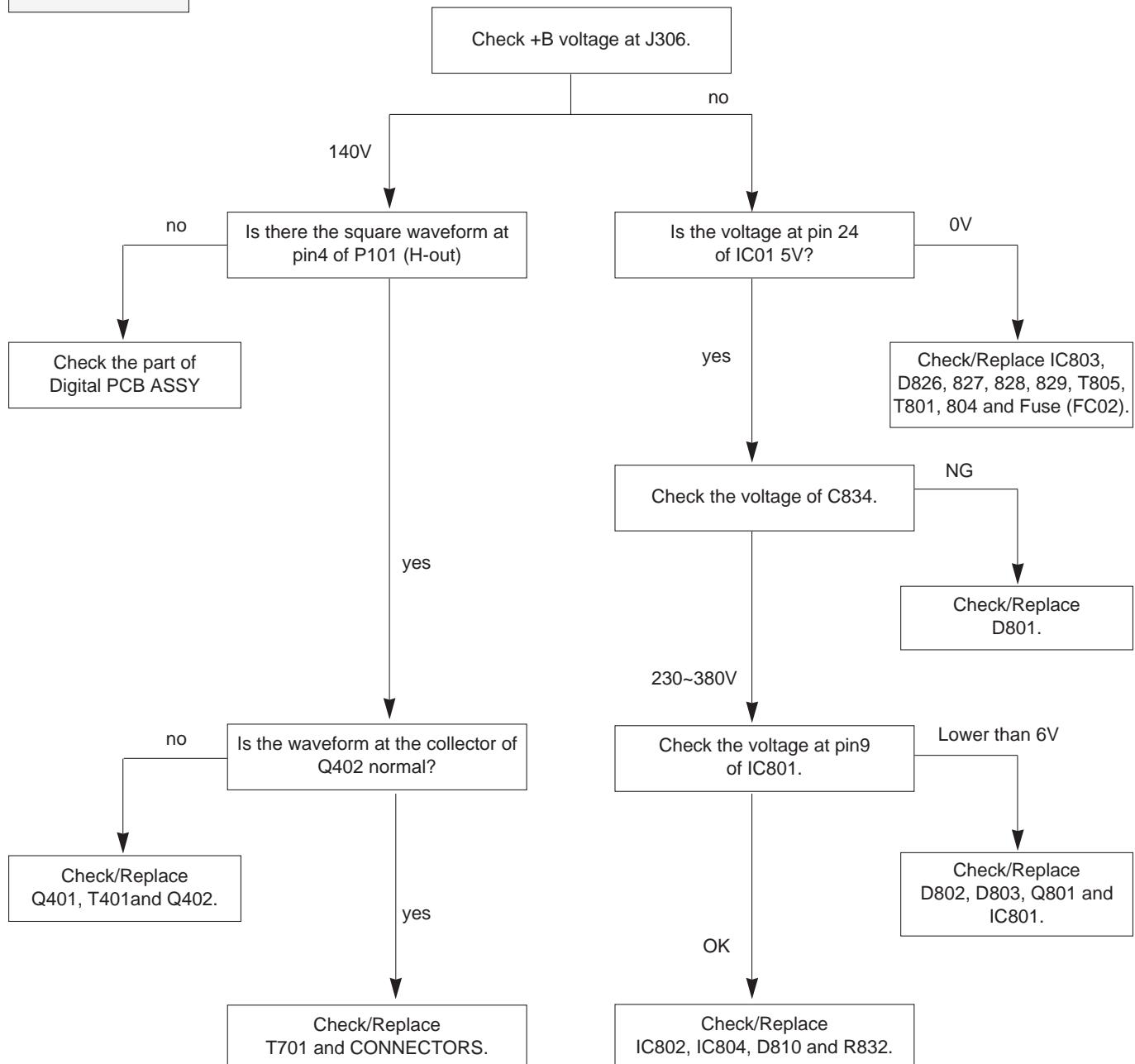


**NO SOUND  
(PICTURE OK)**

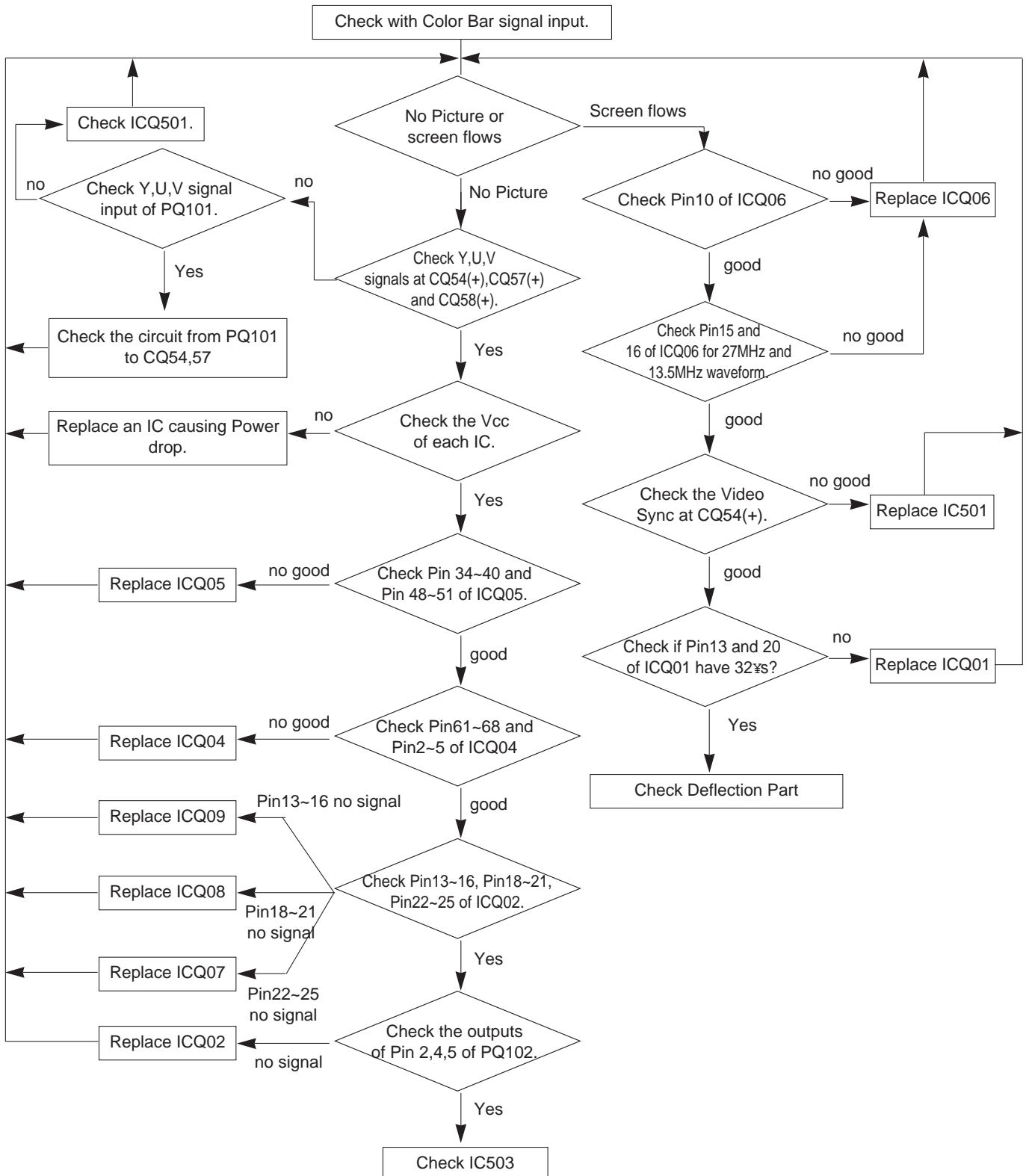




NO RASTER  
NO SOUND



## Digital assy Trouble shooting



## Preparation for VCO Adjustment

1. Connect the measuring equipment to the TV as shown in Fig. 1.
2. Set RF output level of sweep S.G.(Signal Generator) to 80dBuV.
3. Set Alignment Scope, Volts/Div to 100mV, AC/DC switch to AC, Line/Ext switch to Ext.

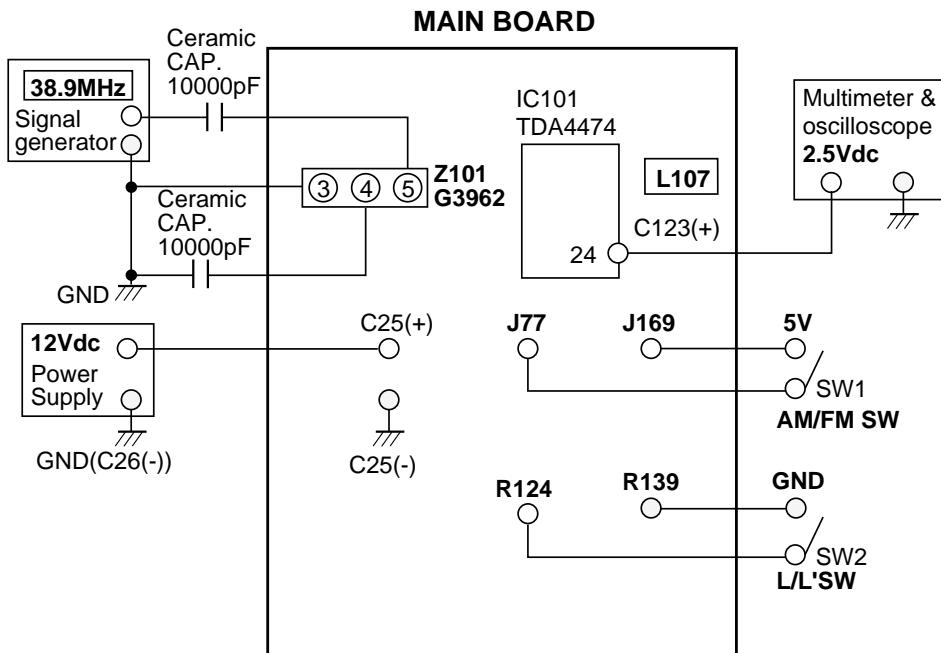


Fig.1: Connection Diagram of Equipment for BG VCO Adjustment

## \* VCO (Voltage Controlled Oscillation) Adjustment

### a) For B/G system

Test Point **Pin 24 of IC101 (+ lead of C123)**  
Adjust **L107**

- 1) Turn on DC power supplies.
- 2) Adjust VCO adjust coil(L107) so that DMM reads 2.5Vdc+\_0.1V.

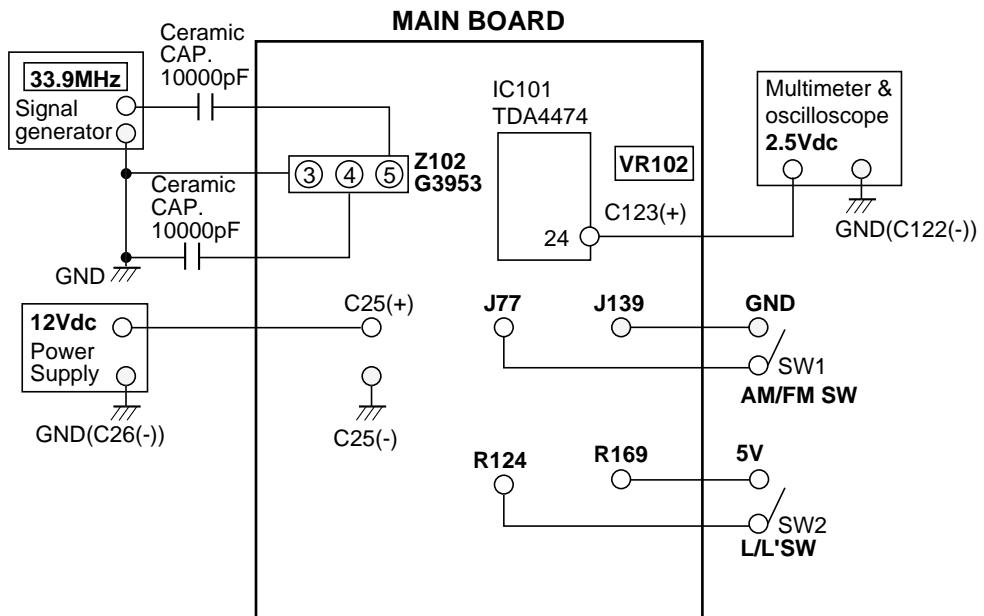


Fig. 2 : Connecting Diagram of Equipments for secam-L' system.

### b) For Secam-L' system

Test Point t : **J5 (one lead of R533)**  
 Adjus t : **VR102**

- 1) Turn on DC power supplies.
- 2) Apply 5Vdc to the + lead of C25.
- 3) Adjust VCO adjust volume(**VR102**) so that the DMM reads 2.5Vdc+\_-0.1V.

### \* Screen voltage adjustment

- 1) Tune the TV set to receive digital pattern.
- 2) Press PSM button on the Remote Controller to get the STANDARD picture.
- 3) Turn the screen VR of FBT until the black level of picture signal is 150Vdc at the digital pattern.

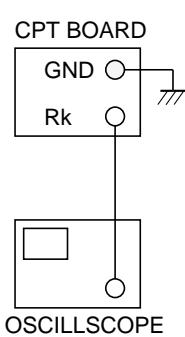


Fig. 3

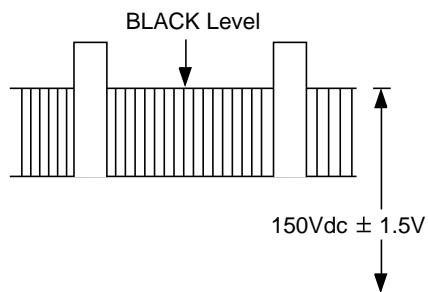


Fig. 4

## \* RF AGC (Auto Gain Control) Adjustment

Test Point : **J173 or Observing Display**  
Adjustment : **VR101**

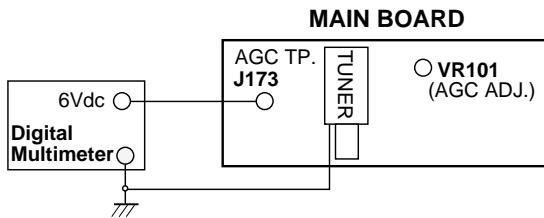


Fig. 5

The RF AGC control (**VR101**) was aligned at the time of manufacture for optimum performance over a wide range of conditions. Readjust of VR101 should not be necessary unless unusual local conditions exist, such as :

- 1) Channel interference in a CATV system
- 2) Picture bending and/or color beats, which are unusually due to excessive RF signal input when the receiver is too close to a transmitting tower or when the receiver is connected to an antenna distribution system where the RF signal has been amplified.  
In this case, the input signal should be attenuated (with pad or filter) to a satisfactory level.
- 3) Picture noise caused by "broadcast noise" or weak signal.  
If the broadcast is "clean" and the RF signal is at least 1mV (60dBu), the picture will be noise free in any area.

Adjusting the **VR101 (RF AGC)** control to one end of rotation will usually cause a relatively poor signal to noise ratio; Adjusting to the other end of rotation will usually cause a degradation of over load capabilities resulting in color beats or adjacent channel reference.

For best results, adjust **VR101** control while performing on all other local channels, or the voltage at J173 will be 6.0+\_0.1Vdc. (RF level: 60dBuV).

## \* Focus Adjustment

**NOTE : This adjustment should be performed after warming up for 10 minutes.**

Test Point : **Observing Display**  
Adjustment : **Focus control of FBT**

- 1) Set color & brightness to minimum, contrast to 50% respectively.
- 2) Input the PAL BG Digital Pattern signal.
- 3) Adjust the Focus control for best overall focus.

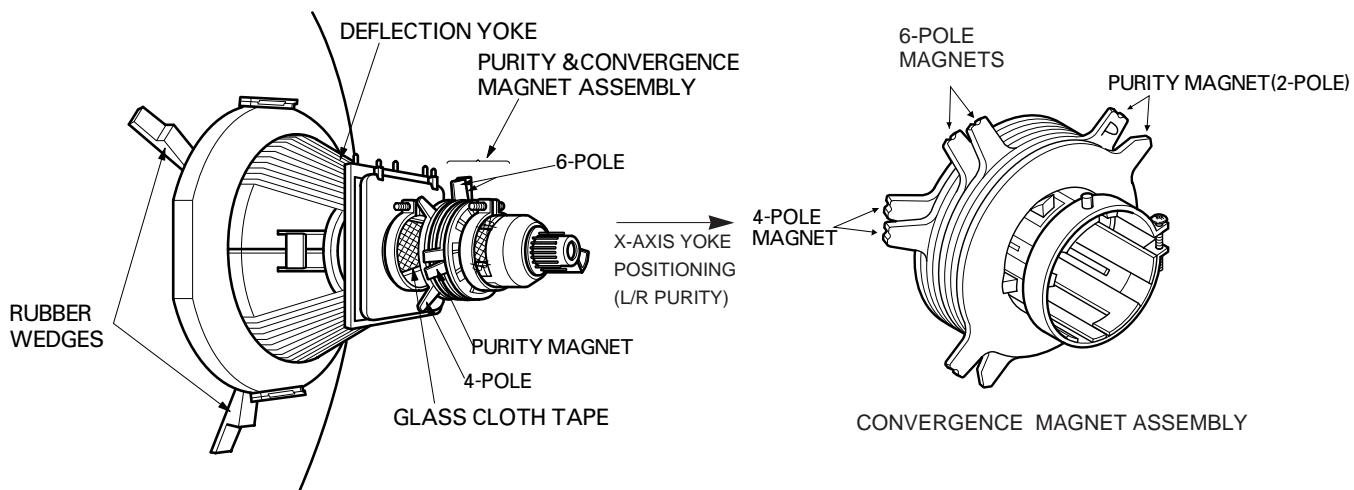
## PURITY & CONVERGENCE ADJUSTMENT

### Caution:

Convergence and Purity have been factory aligned. Do not attempt to tamper with these alignments.

However, the effects of adjacent receiver components, or replacement of picture tube or deflection yoke may require the need to readjust purity any convergence.

5. Reconnect the internal degaussing coil.
6. Position the beam bender locking rings at the 9 o'clock position and the other three pairs of tabs (2,4 and 6 pole magnets) at the 12 o'clock position.



### \* Purity Adjustment

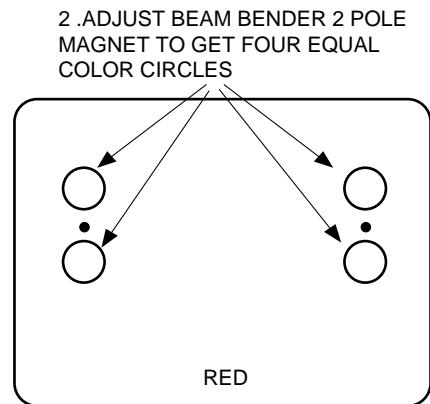
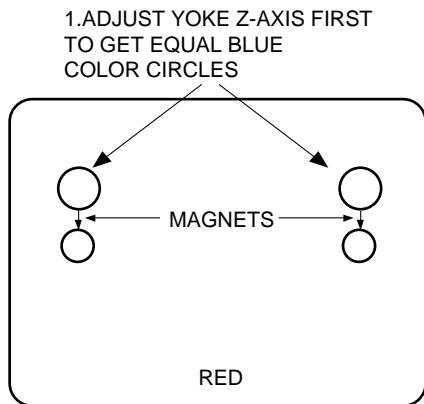
This procedure DOES NOT apply to bonded yoke and picture tube assemblies.

The instrument should be at room temperature (60 degrees F or above) for six (6) hours and be operating at low beam current (dark background) for approximately 20 to 30 minutes before performing purity adjustments.

**CAUTION:** Do not remove any trim magnets that may be attached to the bell of the picture tube.

1. Remove the AC power and disconnect the internal degaussing coil.
2. Remove the yoke from the neck of the picture tube.
3. If the yoke has the tape version beam bender, remove it and replace it with a adjustable type beam bender (follow the instructions provided with the new beam bender)
4. Replace the yoke on the picture tube neck, temporarily remove the three (3) rubber wedges from the bell of the picture tube and then slide the yoke completely forward.

7. Perform the following steps, in the order given, to prepare the receiver for the purity adjustment procedure.
  - a. Face the receiver in the "magnetic north" direction.
  - b. Externally degauss the receiver screen with the television power turned off.
  - c. Turn the television on for approximately 10 seconds to perform internal degaussing and then turn the TV off.
  - d. Unplug the internal degaussing coil. This allows the thermistor to cool down while you are performing the purity adjustment. DO NOT MOVE THE RECEIVER FROM ITS "MAGNETIC NORTH" POSITION.
  - e. Turn the receiver on and obtain a red raster by increasing the red bias control (CW) and decreasing the bias controls for the remaining two colors (CCW).
  - f. Attach two round magnets on the picture tube screen at 3 o'clock and 9 o'clock positions, approximately one (1) inch from the edge of the mask (use double-sided tape).



8. Referring to above, perform the following two steps:
  - a. Adjust the yoke Z-axis to obtain equal blue circles.
  - b. Adjust the appropriate beam bender tabs to obtain correct purity (four equal circles).
9. After correct purity is set, tighten the yoke clamp screw and remove the two screen magnets.
10. Remove the AC power and rotate the receiver 180 degrees (facing "magnetic south").
11. Reconnect the internal degaussing coil.
12. Turn the receiver on for 10 seconds (make sure the receiver came on) to perform internal degaussing, and then turn the receiver off.
13. Unplug the internal degaussing coil.
14. Turn on the receiver and check the purity by holding one (1) round magnet at the 3 o'clock and a second round magnet at 9 o'clock position. If purity is not satisfactory, repeat steps 8 through 14.
15. Turn off the receiver and reconnect the internal degaussing coil.

### \* Convergence Adjustment

**Caution:** This procedure DOES NOT apply to bonded yoke and picture tube assemblies.  
Do not use screen magnets during this adjustment procedure. Use of screen magnets will cause an incorrect display.

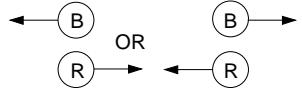
1. Remove AC power and disconnect the internal degaussing coil.
2. Apply AC Power and set the brightness to the Picture Reset condition. Set the Color control to minimum.
3. Apply 8V to the pin.
4. Adjust the Red, Green and Blue Bias controls to get a dim white line.
5. Remove the AC power and 8V from the pin.

6. Reconnect the internal degaussing coil and apply AC power.
7. Turn the receiver on for 10 seconds to perform internal degaussing and then turn the receiver off again.
8. Unplug the internal degaussing-coil.
9. Turn on the receiver, connect a signal generator to the VHF antenna terminal and apply a crosshatch signal.

**Caution:** During the convergence adjustment procedure, be very careful not to disturb the purity adjustment tabs are accidentally move, purity should be confirmed before proceeding with the convergence adjustments.

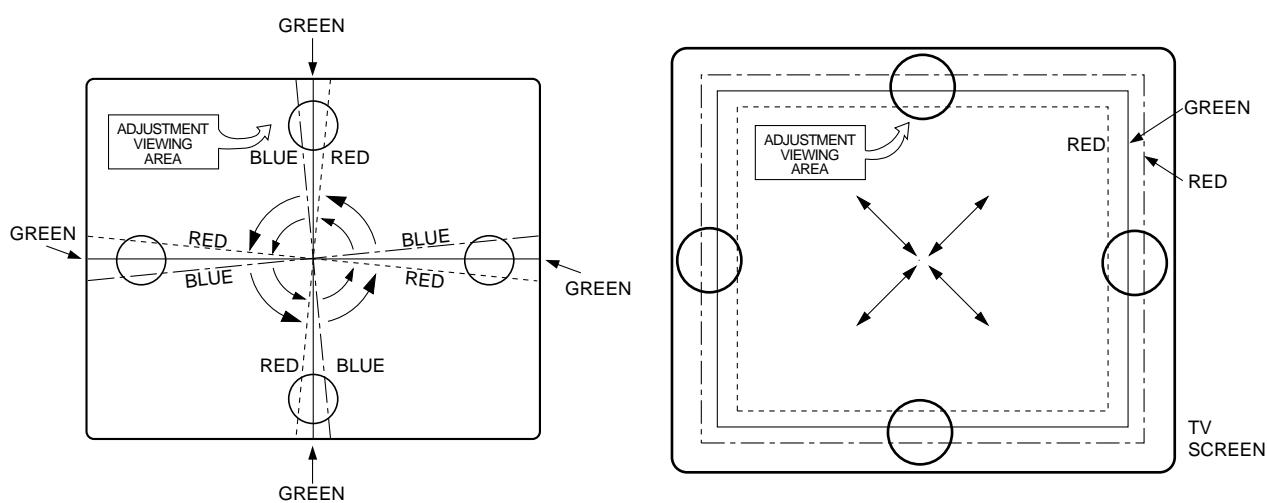
**Note:** Make sure the focus is set correctly on this instrument before proceeding with the following adjustment.

10. Converge the red and blue vertical lines to the green vertical line at the center of the screen by performing the following steps (below TABLE).
  - a. Carefully rotate both tabs of the 4-pole ring magnet simultaneously in opposite directions from the 12 o'clock position to converge the red and blue vertical lines.
  - b. Carefully rotate both tabs of the 6-pole ring magnet simultaneously in opposite directions from the 12 o'clock position to converge the red and blue (now purple) vertical lines with the green vertical line.
11. Converge the red and blue horizontal with the green line at the center of the screen by performing the following steps. (below TABLE)
  - a. Carefully rotate both tabs of the 4-pole ring magnet simultaneously in the same direction (keep the spacing between the two tabs the same) to converge the red and blue horizontal lines.
  - b. Carefully rotate both tabs of the 6-pole ring magnet simultaneously in same direction (keep the spacing between the two tabs the same) to converge the red and blue (now purple) horizontal lines with the green horizontal line.
  - c. Secure the tabs previously adjusted by locking them in place with the locking tabs on the beam bender.

RING PAIRS	ROTATION DIRECTION OF BOTH TABS	MOVEMENT OF RED AND BLUE BEAMS
4 POLE	OPPOSITE	
	SAME	
6 POLE	OPPOSITE	
	SAME	

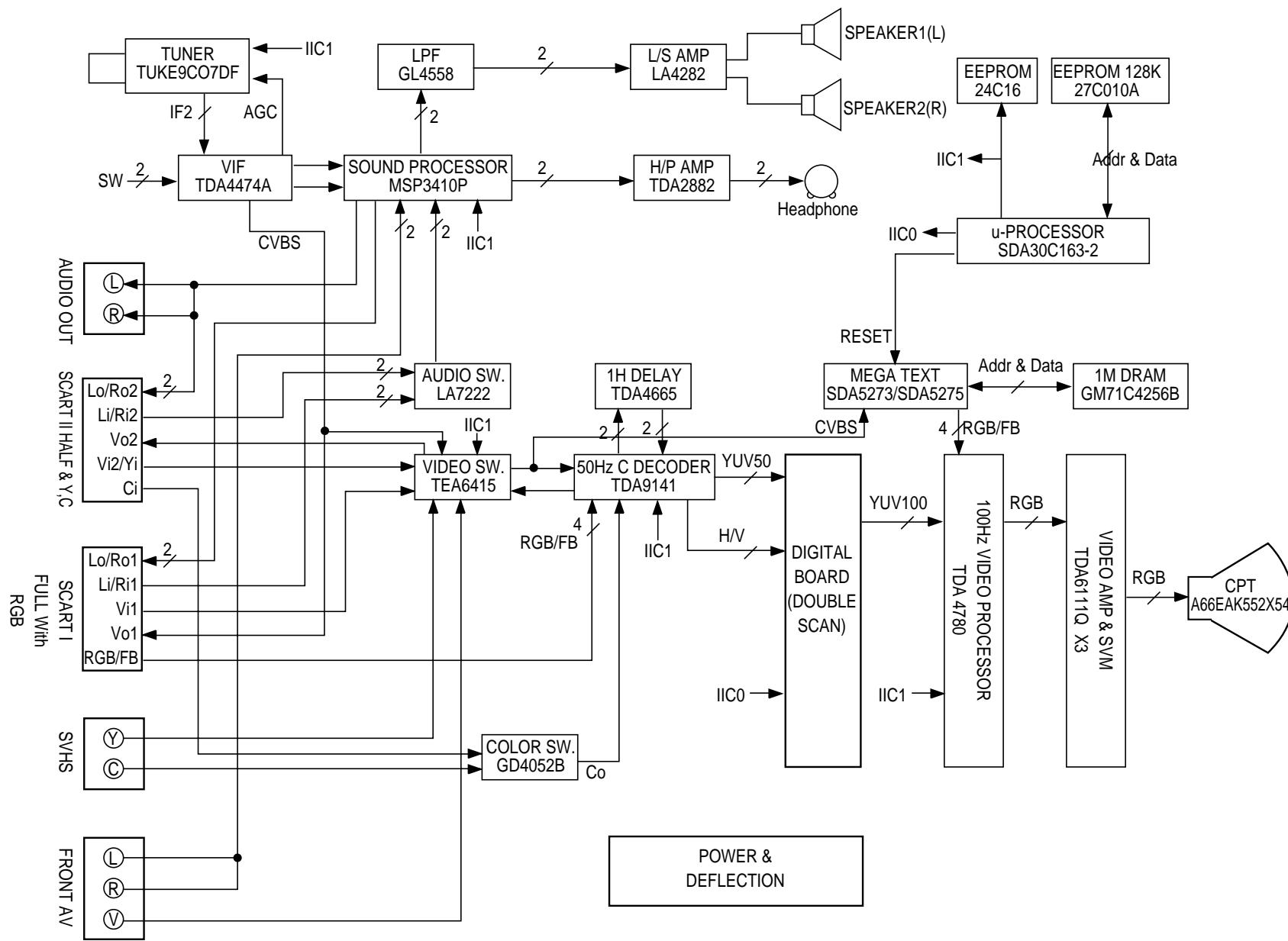
UP/DOWN ROCKING OF THE YOKE CAUSES OPPOSITE ROTATION OF RED AND BLUE RASTERS

LEFT/RIGHT ROCKING OF THE YOKE CAUSES OPPOSITE SIZE CHANGE OF THE RED AND BLUE RASTERS



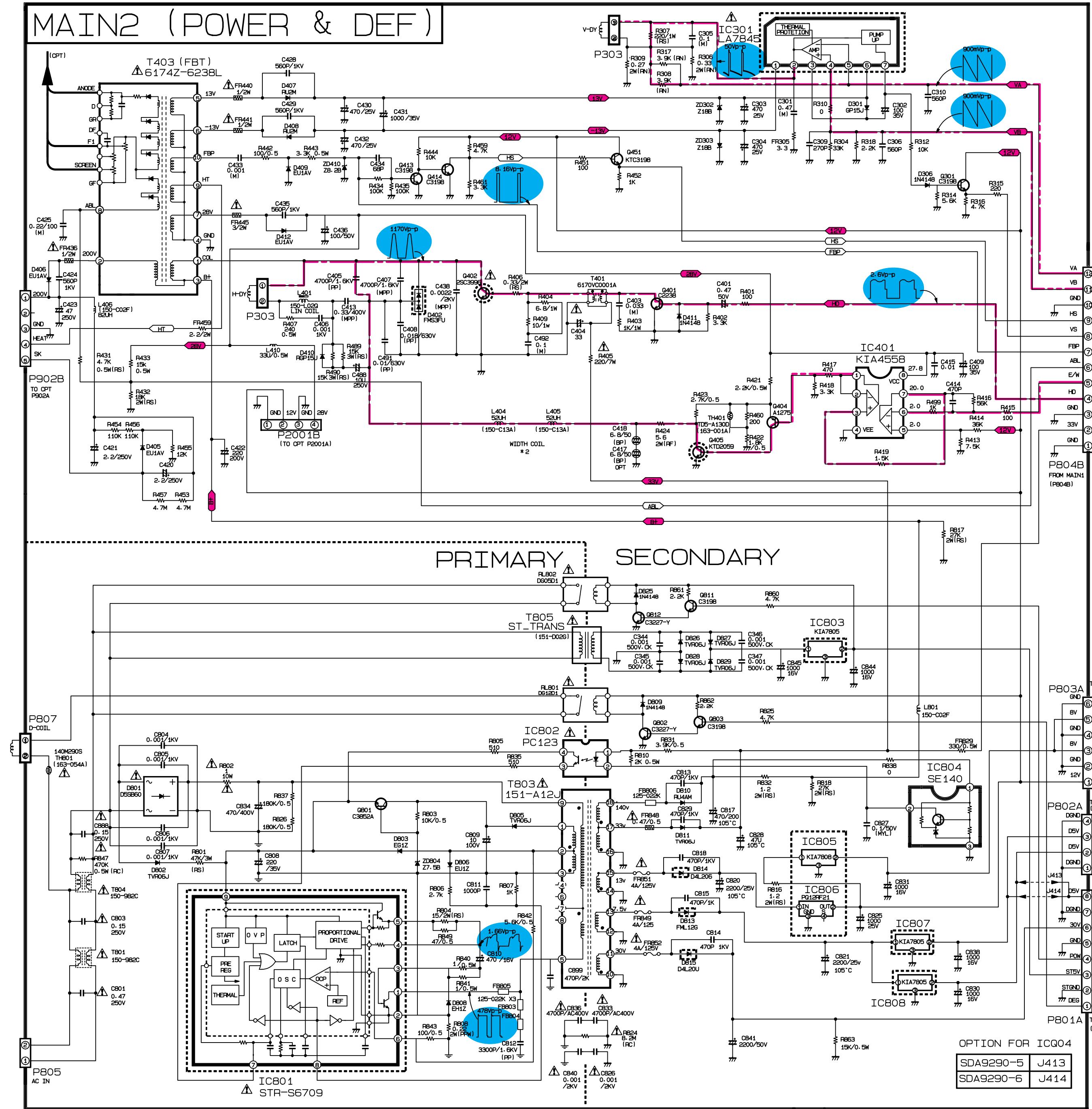
12. While watching the 6 o'clock positions on the screen, rock the front of the yoke in a vertical (up/down) direction to converge the red and blue vertical lines. (Fig upper left)
13. Temporarily place a rubber wedge at the 12 o'clock position to hold the vertical position or the yoke.
14. Check the 3 o'clock and 9 o'clock areas to confirm that the red and blue horizontal lines are converged.
- If the lines are not converged, slightly offset the vertical tilt of the yoke (move the rubber wedge if necessary) to equally balance the convergence error of the horizontal lines at 3 o'clock and 9 o'clock and the vertical lines at 6 o'clock and 12 o'clock.
15. Place a 1.5 inch piece of glass tape over the rubber foot at the rear of the 12 o'clock wedge.
16. While watching the 6 o'clock and 12 o'clock areas of the screen, rock the front of the yoke in the horizontal (left to right) motion to converge the red and blue horizontal lines. (Fig. upper right)

17. Temporarily place a rubber wedge at the 5 o'clock and 7 o'clock positions to hold the horizontal position of the yoke.
18. Check the 3 o'clock and 9 o'clock areas to confirm that the red and blue vertical lines are converged. If the lines are not converged, slightly offset the horizontal tilt of the yoke (move the temporary rubber wedges if necessary) to equally balance the convergence error of the horizontal lines at 6 o'clock and 12 o'clock and the vertical lines at 3 o'clock and 9 o'clock.
19. Using a round magnet confirm purity at the center, right and left sides and corners. See Purity Adjustment Procedure.
20. Reconfirm convergence and apply a 1.5 inch piece of glass tape over the rubber foot at the rear of the 5 o'clock and the 7 o'clock wedges.



# CIRCUIT DIAGRAM FOR PC-63A SUB ASSYS

## MAIN2 (POWER & DEF)



## NOTICE

Since this is a basic circuit diagram.  
The value of components and some partial connection  
are subject to change for improvement.

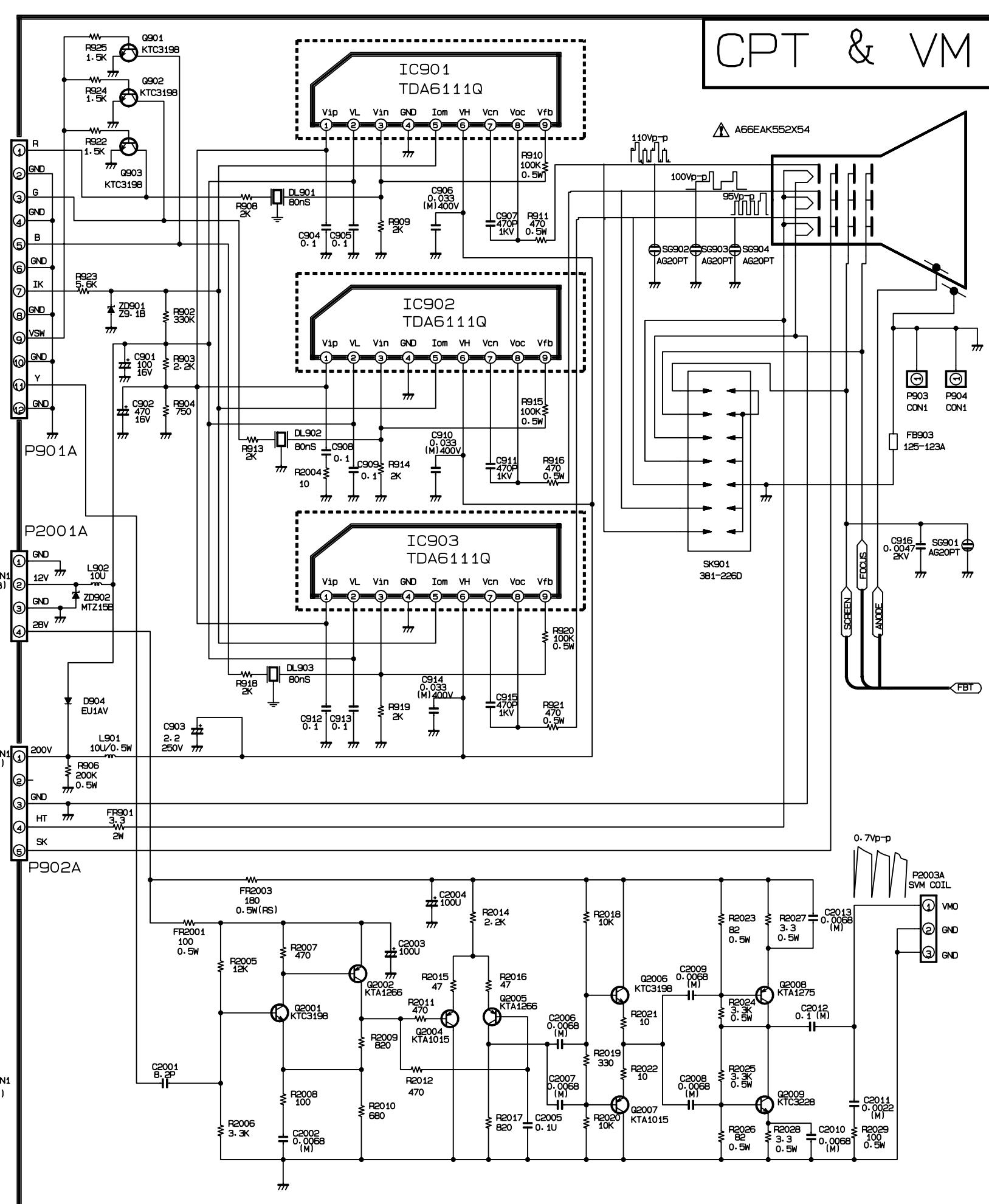
The components marked  $\Delta$  conform to VDE or IEC guide-lines  
and are essential for safe operation of the set, while those  
marked  $\Delta$  are required for correct operation. Use specified  
parts only when replacing.

Value of resistor, capacitor and inductor

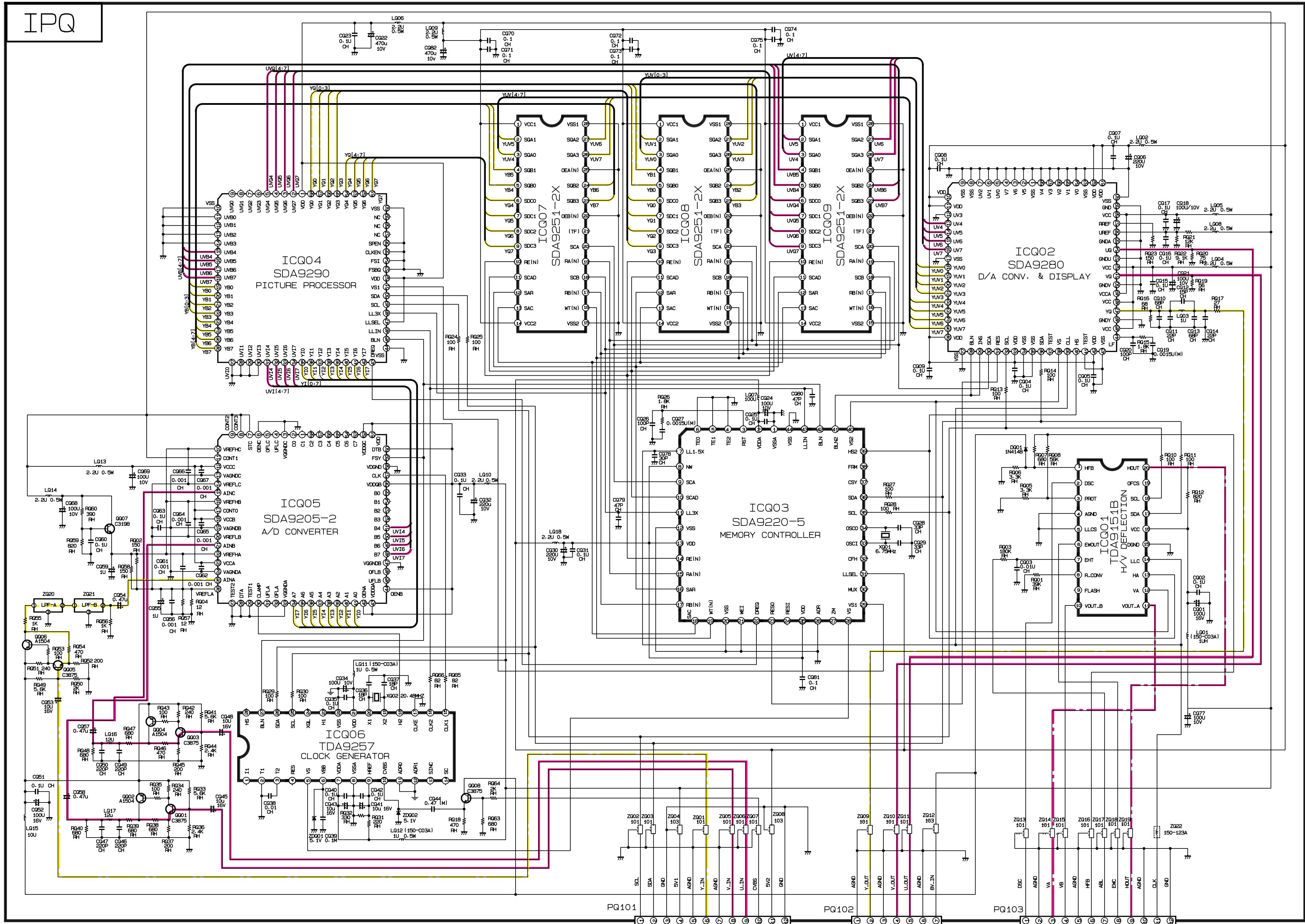
1. Resistances are shown in ohm.  $\text{K} = 1,000$ .  $\text{M} = 1,000,000$ .
2. Unless otherwise noted in schematic, all capacitor values less  
than 1 are expressed in  $\mu\text{F}$  and the values are less than 1 in  $\text{pF}$ .
3. The sign of  $\text{M}$  in schematic means MYLAR CAPACITOR.
4. Unless otherwise noted in schematic, all inductor values less  
than 1 are expressed in  $\text{uH}$ .

Observation of voltage and waveforms

1. Voltages with  $V_{\text{SW}}$  from point shown to chassis ground.
2. Line voltage is 220 - 250 volts
3. Signal pattern is color-bar
4. The schematic shown is representative only.
5. All waveforms are taken using a wide band oscilloscope  
and a low capacity probe.
6. Check Fine tuning: AGC, Brightness, Contrast and Colour  
for best picture. Make sure that Colour Brightness  
are in mid position and Contrast is in 75%.



## IPQ



# CIRCUIT DIAGRAM FOR PC-63A CHASSIS

## 〈 CONTROL 〉

